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Introduction

Our original goal was to use the improved positions of the *Einstein* Slew Survey to help identify sources in (a) background fields and; (b) the North Ecliptic Pole region of *Ginga* data. Our main progress has been on the former of these two goals. In July, 1996, we performed a detailed search of the background regions at Leicester, UK. Only one of the Slew/*Ginga* fields had a high enough count rate (> 3 LAC cts s^{-1}) for an unambiguous detection, given the known fluctuations in the LAC background (details below). However, this one field contains a DQ Her star, which is very interesting in its own right.

Data Analysis

YY Dra was observed serendipitiously in a *Ginga* background field on 12 November 1990, close to the axis (14 arcmin away; ¿ 90% of the on–axis response; Turner et al. 1989). We have made a careful investigation of the *Ginga* background at the time of the observation in order to derived a reliable spectrum for YY Dra. The *Ginga* background consists of two components, one particle and one cosmic, which can be estimated using off-source data accumulated over four-month period (see e.g. Hayashida et al. 1989). Although the cosmic contribution to the *Ginga* background varies with energy (but is constant in time), fluctuations between different sky positions prove to be the greatest uncertainty in weak spectra such as that presented here. We have derived a mean cosmic background spectrum from data taken at high Galactic latitudes. Comparison of the YY Dra data with this mean spectrum indicates residual emission at a level of $\sim$ 3.5 counts sec^{-1} (LAC top only, 2–10 keV; = 5 cts s^{-1} for the whole LAC band). Butcher (1994) has shown variations in the cosmic background to be approximately Gaussian with a 1 σ width of $\sim$ 1 counts sec^{-1} (2–10 keV), much lower than the residual emission in the YY Dra data. Thus we are confident that YY Dra has been detected at hard X-rays with *Ginga*.

Results

We analyzed the *Ginga* spectrum below 20 keV in XSPEC, using a 4 times binning above 10 keV, and adding systematic errors of 1% as is standard. Simple power–law or bremsstrahlung plus absorption fits are unacceptable, with $\chi^2_\nu = 1.8$ and a prominent Fe emission feature (Figure 1). The fit is improved substantially by addition of a narrow Fe line: of equivalent width <374 eV (90% confidence) and 6.8–7.2 keV in the case of a power law ($\chi^2_\nu = 0.6$). The feature is most likely produced by thermal emission, although ASCA is needed to separate out any reflection components at ~6.4 keV, and to separate the He–like and H–like thermal components (e.g., Figure 4 of Ishida et al. 1994).

Future Work

We have proposed for ASCA SIS observations of YY Dra. No previous hard X–ray spectrum of this source exists, presumably because it was not known to be a CV during the lifetime of the *Ginga* satellite. We will use ASCA to resolve the separate components of the Fe K emission, and to set constraints on temperatures in the accretion column, and the mass of the white dwarf (as in Ishida & Fujimoto 1995a, b). We will study how the continuum changes with spin and orbital phase (as in Hellier et al. 1996). Recent work on AO Psc, BG

CMi, EX Hya, and FO Aqr, V1223 Sgr has shown how substantially the SIS can improve on the previous work with *Ginga.*

We intend to cross-correlate a list of bright (> 3 LAC cts s^{-1}) *Ginga* sources with Slew and recently published ROSAT all-sky survey catalogues, to obtain additional 2–20 keV spectra of interesting sources.

References

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